

POWER PLANT EFFICIENCY AND RELIABILITY RESPONSES

Request #77 - Please provide an assessment of overall efficiency of the plant with and without duct firing. Please include expected duct firing hours and overall decrease in plant capacity without duct firing.

Response #77 - As indicated in Section 3.4.2 of the AFC, at base load (no duct firing) under average ambient conditions, the IEEC is projected to have a net output of 538 MW, operating at a heat rate of approximately 6,700 Btu/kWh on a higher heating value (HHV) basis. This corresponds to a base load efficiency of about 56.5 percent on a lower heating value (LHV) basis. At average ambient conditions, when duct firing is added, the overall plant efficiency decreases to approximately 53.2 percent (LHV). The IEEC will be a merchant facility, thus the number of hours of duct firing cannot be accurately predicted, but will be a function of market conditions and the amount of peaking capacity needed in the state. In order to present a worst-case condition for the evaluation of air quality, it has been assumed that the duct burners will operate up to 5,100 hours annually. Duct firing will add between 162 and 166 MW to the output of the plant, depending on ambient temperatures.

Request #78 - Please provide a description of the operation of the combined cycle block for a failure of the HRSG. Include with this description, the method of operating the plant with only the CTs, and include any estimated time constraints for having the CTs on line for a failure of the HRSG.

Response #78 - If an HRSG fails, the corresponding combustion turbine will need to be shut down. Since the IEEC will not be provided with bypass stacks, the combustion turbines will not be able to operate unless their corresponding HRSG also operates.